

Model Question Paper-1 with effect from 2022-23 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination Data Structures Using C

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1			*Bloom's Taxonomy Level	Marks
Q.01	a	What is array? Explain different types of arrays.	L2	5M
	b	Explain Dynamic memory allocation functions supported by C with syntax and examples.	L2	8M
	c	Define Data Structure. Explain the classification of data Structure with examples	L2	7M
OR				
Q.02	a	Define Pointer. How to declare and initialize pointers, with example	L2	7M
	b	Write a C program to demonstrate the basic operations on arrays.	L2	8M
	c	Differentiate structure and unions. Show example for both.	L2	5M
Module-2				
Q. 03	a	Define stack. Write C functions for demonstrating various stack operations.	L2	5M
	b	Outline the algorithm for infix to postfix. Using the same algorithm convert the following INFIX expression to equivalent POSTFIX. $((H*(((A+(B+C)*D))*F)*G)*E)+J$	L3	8M
	c	Develop a C recursive program for tower of Hanoi problem. Trace it for 3 disk with schematic call tree diagram.	L3	7M
OR				
Q.04	a	What is Recursion? Write recursion procedure for finding GCD of two numbers.	L3	5M
	b	Write a C function for PUSH(), POP() and display of STACK	L3	7M
	c	Write a algorithm to evaluate postfix expressions and trace the same on given expression. i) $123+*321-$ ii) $((a/(b-c+d))*(e-a)*c)$		8M
Module-3				
Q. 05	a	What is linked list? Explain the different types of linked lists with neat diagram.	L2	6M
	b	Write a C function to insert a node at front and delete a node from the rear end in a circular linked list	L3	8M
	c	Write a differences between Arrays and linked list	L2	6M
OR				
Q. 06	a	What is the advantages of doubly linked list over singly linked list? Illustrate with an example.	L2	6M
	b	Develop a C function to implement insertion, deletion and display operations of a circular queue.	L3	8M
	c	Write a note on Dequeue and Priority queue	L2	6M
Module-4				
Q. 07	a	Define binary tree with an example. Write a C recursive routine to traverse the given tree using inorder, preorder and postorder.	L2	10M
	b	Define binary search tree. Draw the BST the following input: 14 15 4 9 7 18 3 5 16 20 17 9.	L3	10M
OR				
Q. 08	a	What is tree? With suitable example, define: i) Level of the binary tree. ii) Complete binary tree. iii) Degree of the tree.	L2	10M
	b	What is the advantage of the threaded binary tree over binary tree? Explain the construction of threaded binary tree for 10 20 30 40 and 50	L3	10M

Module-5				
Q. 09	a	Explain in detail about static and dynamic hashing with example.	L2	10M
	b	Write a kruskal algorithm with example	L2	10M
OR				
Q. 10	a	Explain Huffman algorithm with example.	L2	10M
	b	Write a prims algorithm with example.	L2	10M